ALEKSEYCHIK, Stepan Nikolayevich; pri uchastii sleduyushchikh: GAL'TSEV-BEZYUK, S.D.; GNEDIN, K.I.; ZAYTSEV, S.M.; KIRICHEK, M.A.; KOZLOV, A.L.; PURKIN, L.B.; RATNER, V.Ya.; RATNOVSKIY, I.I.; RAKHMANOV, K.F.; TABOYAKOV, A.Ya.; TSITENKO, N.D.; GOLUBKOV, I.A., nauchnyy red.; KELAREV, L.A., vedushchiy red.; YASHCHURZHINSKAYA, A.B., tekhn.red.

[Geology and gas and oil potentials of northern Sakhalin] Geologicheskoe stroenie i gazoneftenosnost' severnoi chasti Sakhalina. Leningrad, Gos. nauchn. -tekh.izd.-vo neft. i gorno-toplivnoi lit-ry Leningr. otd-nie, 1959. 226 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.135).

(Sakhalin--Petroleum geology)
(Sakhalin--Gas, Natural--Geology)

End Mills

28-6-17/40

ASSOCIATION: Committee of Standards, Measures and Measuring Devices (Komitet standartov, mer i izmeritel'nykh priborov)

AVAILABLE: Library of Congress

Card 2/2 1. Industry-USSR 2. Cutting tools--Standards

AUTHOR: Zaytsev, S.N., Engineer 28-6-17/40

TITLE: End Mills (Kontsevyye frezy)

PERIODICAL: Standartizatsiya, 1957, # 6, p 50 (USSR)

ABSTRACT: This article describes the standard "ГОСТ 8237-57" for end mills, approved in 1957. It was prepared by the Leningrad Branch of the All-Union Project-Technological Institute (VPTI) and the All-Union Scientific Research Institute of Tools (Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut) in accordance with the suggestion of V.A. Karasev of the Leningrad Machinebuilding Plant imeni Kirov.

Unequal circular pitch, increased relief angle, as well as increased gullet root radius and size of gullet are the distinctive features of this new end mill. The design eliminates chatter, provides a smooth flow of chip and a long cutting life. The standard allows two types of shank - cylindrical and tapered. These two types are subdivided into cutters with 4, 5 and 6 normal teeth and large-tooth cutters with 3 and 4 teeth. The description gives the size in angle degrees of the unequal pitch, the relief angle of large-tooth mills, and the cutting parameters.

There is one table.

Card 1/2

ZAYTSEV, S.M.

IVANIN, Ivan Yakovlevich, kand.tekhn.nauk; POSOHIKOV, V.G., kand.tekhn. nauk, retsenzent; ZAYTSEV, S.M., inzh., nauchnyy red.; TUMARKIN, D.M., red.izd-va; BORODINA, I.S., red.izd-va; GUSEVA, S.S., tekhn. red.

[Examples in designing and calculating wood structures] Primery proektirovaniia i rascheta dereviannykh konstruktsii. Moskva, Gosstroiizdat, 1957. 223 p. (MIRA 11:2)
(Building, Wooden)

ARDANSKIY, A.S.; ZAYTSEV, S.M., inzhener, redaktor.

[The joiner - carpenter] Stoliar - stroitel'. Izd.4., perer. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1952. 226 p. (MLRA 7:3)

(Woodwork) (Carpentry)

ZAYTSEV, S.M.

25(5);30(5) PHASE I BOOK EXPLOITATION SOV/2935

Moscow. Inzhenerno-ekonomicheskiy institut imeni Sergo Ordzhonikidze

Voprosy povysheniya ekonomicheskoy effektivnosti kapital'nykh vlozheniy za schet uluchsheniya ekonomiki i organizatsii stroitel'nogo proizvodstva, a takzhe stroitel'nogo proyektirovaniya (Problems of Increasing Economic Benefits of Capital Investments by Improving the Economy and Organization of Construction Work and Planning) Moscow, Gosstroyizdat, 1959. 673 p. (Series: Its: Trudy, vyp. 14) Errata slip inserted. 2,000 copies printed.

Additional Sponsoring Agencies: USSR. Gosudarstvennyy komitet po delam stroitel'stva. Otdel ekonomiki stroitel'stva, Akademiya stroitel'stva i arkhitektury SSSR. Nauchno-issledovatel'skiy institut ekonomiki stroitel'stva, and Nauchno-tekhnicheskoye obshchestvo stroitel'noy promyshlennosti SSSR. Sektsiya ekonomiki i organizatsii.

Eds.: D. I. Bukshteyn, G. A. Dovzhik, A. S. Ginzburg, N. A. Yefremov, L. A. Kantorovich, A. G. Rotshteyn, V. V. Uspenskiy, N. A. Maslov, V. N. Shafranskiy, and A. N. Shkinev; Tech. Ed.: P. G. Uilenson; Editorial Board of the Institute: G. V. Kozlova (Resp. Ed.) Docent; Ye. I. Varenik, Professor, V. I. Veyts, Professor, S. P. Vostrokuntov, Professor, V. G. Davidovich, Professor, N. I. Danyevskiy, Professor, N. P. Zhebrovskiy, Professor, S. Ya. Karmazin, Professor, P. V. Kozlovskiy, Professor, N. N. Nekrasov, Professor, L. I. Onishchik, Professor, N. Ye. Pestov, Professor, L. M. Roytburd, Professor, N. A. Satel', Professor, G. V. Teplov, Professor, B. A. Teleshev, Professor; Editorial Commission of this volume: V. F. Girovskiy (Chairman) Docent, Ye. I. Varenik, Professor, M. S. Gurevich, I. Ya. Ivanin, Docent, S. N. Reyzin, Candidate of Technical Sciences.

PURPOSE: This collection of articles is intended for staff members of construction organizations, design bureaus, and scientific research establishments as well as for faculty members and students of institutions of higher education.

COVERAGE: This collection of reports on construction problems was originally presented and discussed at a scientific-technical conference held in Moscow in February 1958 under the auspices of the Moscow Engineering and Economic Institute and other government and scientific organizations. Possibilities of increasing economic benefits from capital investments by improving methods of organizing and planning construction projects are reviewed. Results of efforts by construction and design organizations to reduce the costs of construction and building operations, to introduce economic accountability and planning in lower level construction units, to increase the productivity of labor, and to boost work and planning efficiency are analyzed. Problems in preparing estimates, making financial forecasts, and financing construction projects are discussed. No references are given.

Problems of Increasing Economic Benefits (Cont.) SOV/2935

AVAILABLE: Library of Congress

Card 11/11

TM/os
2/5/60

SHNAYDMAN, Maks Iosifovich; ZAYTSEV, S.I., otv.red.; SUROVA, V.A., red.izd-va; IGNAT'YEVA, L.I., red.izd-va; PROZOROVSKAYA, V.L., tekhn.red.; LOMILINA, L.N., tekhn.red.

[Efficiency of using new equipment in coal mines] Effektivnost' primeneniia novoi tekhniki na ugol'nykh shakhtakh. Ugletekhizdat, 1958. 91 p. (MIRA 12:3)

(Karaganda Basin--Coal mines and mining)

ZAITSEV, Sergei Ivanovich, jt. ed.

Industrial construction; a systematic compilation. 2. izd. perer. i dop. po materialam na 17 iiunia 1931 g. Moskva, Sovetskoe zakonodatel'stvo, 1931. 392 p. (33-36418)

ZAYTSEV, Sergei Ivanovich, jt. comp.

BOKIAKO, Aleksandr Nikolaevich,

(Laws on the collectivization of the agricultural economy and the struggle for the harvest) Moskva, Gos. iurid. izd-vo RSFSR, 1930. 255 p.
(41-37684)

Law

KHOKHLOV, Ivan Vasil'yevich, zasluzhennyy deyatel' nauki i tekhniki Komi ASSR; SHERSTNEV, Nikolay Vasil'yevich, inzh.; FEDANOV, Vladimir Petrovich, inzh., zasluzhennyy deyatel' nauki i tekhniki Komi ASSR; ZAYTSEV, Sergey Ivanovich, inzh.; SEREBRYANYY, A.G., otv.red.; OKHRIMENKO, V.A., red.izd-va; SABITOV, A., tekhn.red.

[Mining of Pechora Basin coal deposits] Razrabotka ugol'nykh mestorozhdenii Pechorskogo basseina. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1960. 289 p.

(MIRA 13:12)

(Pechora Basin--Coal mines and mining)

L 00817-67

ACC NR: AT6022659

that at temperatures around 2000°K, the excitation time of the ν_3 vibrational level of the CO_2 molecule does not exceed 2-3 μsec. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: None/ ORIG REF: 004/ OTH REF: 002

Card 2/2 Fv

L 00817-67 EWT(1)/EWP(m) WW/GD

ACC NR: AT6022659 SOURCE CODE: UR/0000/66/000/000/0170/0171

AUTHOR: Zaytsev, S. G.; Lazareva, Ye. V.

59
871

ORG: none

TITLE: Measurement of the density of carbon dioxide in the stream behind a shock front

SOURCE: AN SSSR. Energeticheskiy institut. Issledovaniya po fizicheskoy gazodinamike (Studies of physical gas dynamics). Moscow, Izd-vo Nauka, 1966, 170-171

TOPIC TAGS: carbon dioxide, shock wave front, thermodynamic equilibrium

ABSTRACT: Studies of carbon dioxide behind a shock front were carried out in the M_s range from 2 to 8. The density in the stream behind the shock front propagating at $M_s<3$ increases and reaches a value corresponding to a complete thermodynamic equilibrium. This process is caused by a lag of the time of excitation of deformation vibrations ν_2 of the CO_2 molecule. For shock waves with $M_s>3$, this increase in density was not observed. The densities measured immediately behind the shock front, ρ_1^*, coincide with the average density in the flow, ρ_1. Comparison of measured and calculated densities leads to the conclusion that the density values immediately behind the shock front coincide within 2-3% with calculated values obtained by assuming a complete thermodynamic equilibrium. Interferograms of the stream show that the density fluctuates about an average value ρ_1 which remains constant within 2-3% over the entire length of the stream, from the shock front to the contact surface. It is concluded

Card 1/2

L 43157-66

ACC NR: AT6022643

T and p behind an incident and reflected wave respectively (T_0 = 700°, p_0 = 10 mm Hg). Solid curves correspond to the same degree of ionization, given by the relation $\alpha = X_{Cs^+}+X_{Cs^+}$). Broken curves correspond to fixed values of parameter β, which determines the ratio of the energy of electrostatic interaction of the charged particles to their thermal energy. It is apparent that the degree of ionization behind the incident and reflected waves will reach 80%, and that coefficient β will amount to 20%. This shows that in the case under consideration one should expect to obtain a gaseous medium having properties substantially different from those of an ideal gas, since the fraction of the energy of electrostatic interaction of the particles is comparable to their thermal energy. Orig. art. has: 1 figure, 2 tables, and 2 formulas.

SUB CODE: 20/ SUBM DATE: 31Feb66/ ORIG REF: 001/ OTH REF: 003

Card 3/3 MLP

L 43157-66
ACC NR: AT6022643

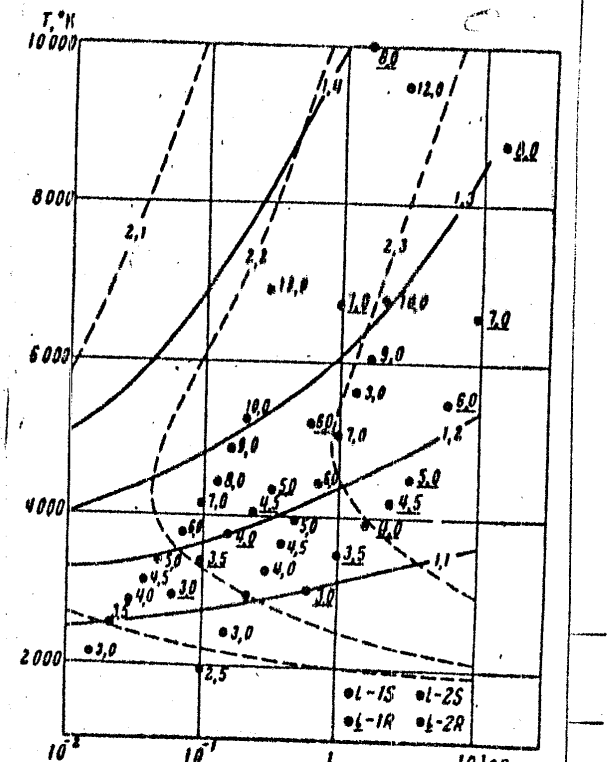


Fig. 1. Values of temperature and pressure behind incident and reflected wave propagating through cesium vapor

1.1 — α=0.01; 1.2 — α=0.1; 1.3 — α=0.5; 1.4 — α=0.9;
2.1 — β=0.05; 2.2 — β=0.1; 2.3 — β=0.2

Card 2/3

L 43157-66 EWT(1)/EWP(m)/EWT(m)/EWP(t)/ETI IJP(c) JD/WW/JW/GD/JG

ACC NR: AT6022643 SOURCE CODE: UR/0000/66/000/000/0030/0033

AUTHOR: Zaytsev, S. G.

ORG: none

TITLE: Thermodynamic parameters of cesium behind an incident and reflected shock wave

SOURCE: AN SSSR. Energeticheskiy institut. Issledovaniya po fizicheskoy gazodinamike (Studies of physical gas dynamics). Moscow, Izd-vo Nauka, 1966, 30-33

TOPIC TAGS: cesium, reflected shock wave, low temperature plasma, thermodynamic characteristic

ABSTRACT: The use of cesium for studying the properties of low-temperature plasma is the most convenient because, of all the alkali metals, cesium has the lowest ionization potential and lowest temperature for the same saturated vapor pressure. Values of the thermodynamic parameters behind an incident and a reflected wave are considered for two initial states of the gas: $T_0 = 600°K$, $p_0 = 1$ mm Hg; $T_0 = 700°K$; $p_0 = 10$ mm Hg (under these conditions, the cesium vapor is close to the saturated state). It is shown that the influence of the molecular component on the thermodynamic parameters of cesium vapor can be neglected. Results of the calculations are shown in Fig. 1, where points 1S denote values of T and p behind an incident shock wave propagating through Cs vapor ($T_0 = 600°$, $p_0 = 1$ mm Hg) at a Mach number $M_s = 1$. Points 1R denote values of the parameters behind the reflected wave. Points 2S and 2R designate the values of

Card 1/3

L 12011-66
ACC NR: AT6001409

0.02 μF yielding short-lived (to 10^{-6} sec) high brightness sparks. The photographic process is synchronized by means of a synchronization block the design and operation of which is described. The operation of the device is illustrated by photographs showing the propagation of a shock wave, the generation and propagation of the $4H_2 + O_2$ reaction in gases, and the structure of the shock wave and of the gas flow behind such a wave. Orig. art. has: 5 figures.

SUB CODE: 14, 20 / SUBM DATE: none

Card 2/2

L 12011-66 FSS-2/EWT(l)/EWP(m)/EWA(d)/T/FCS(k)/EWA(c)/EWA(l) IJP(c)

ACC NR: AT6001409 SOURCE CODE: UR/3180/64/009/000/0215/0218

AUTHOR: Bazhenova, T. V.; Zaytsev, S. G.; Naboko, I. M.

ORG: none

TITLE: The study of gas flow through shock tubes using high speed spark photography

SOURCE: AN SSSR, Komissiya po nauchnoy fotografii i kinematografii. Uspekhi nauchnoy fotografii, v. 9, 1964. Vysokoskorostnaya fotografiya i kinematografiya (High-speed photography and cinematography), and insert facing page 224

TOPIC TAGS: high speed photography, electric discharge, light source, shock wave analysis, schlieren photography

ABSTRACT: This article discusses photography of high-speed processes in shock tubes, using a high-quality spark discharge. A spark discharge circuit is shown with a "linear" light source consisting of a discharge tube filled with hydrogen at 1 atm and having a variable spark distance. The 1 μF capacitor battery charged by a 22 kV source is discharged through a 7 kOhm resistance into the spark discharge circuit with a capacity of

Card 1/2

ACCESSION NR: AP4044736

plotted versus M_s for complete thermodynamic equilibrium and thermal equilibrium between translational and 667 cm^{-1} vibrational level, with 1336 and 2350 cm^{-1} frozen. Next, the density field behind the reflected shock wave was measured using both vertical and inclined slits. For $3<M_s<4$ and 10 mm Hg pressure the measured density field in CO_2 agreed very well with theoretical calculations. The density field in nitrogen was measured in the range $2<M_s<6$. Vibrational relaxation times behind the reflected shock were around 1 μsec. Argon measurements covered a Mach range $2<M_s<5$. It was found that for incident Mach numbers less than six density measurements behind the reflected shock agreed with calculations to within 3%. "The authors are deeply grateful to L. M. Trukhanova for taking part in the experiments and reducing the data." Orig. art. has: 7 figures and 4 formulas.

ASSOCIATION: none

SUBMITTED: 26Jul63 ENCL: 00

SUB CODE: ME NO REF SOV: 003 OTHER: 009

Card 2/2

ACCESSION NR: AP4044736 S/0207/64/000/004/0143/0149

AUTHORS: Zaytsev, S. G. (Moscow); Lazareva, Ye. V.(Moscow); Shatilov, A. P. (Moscow)

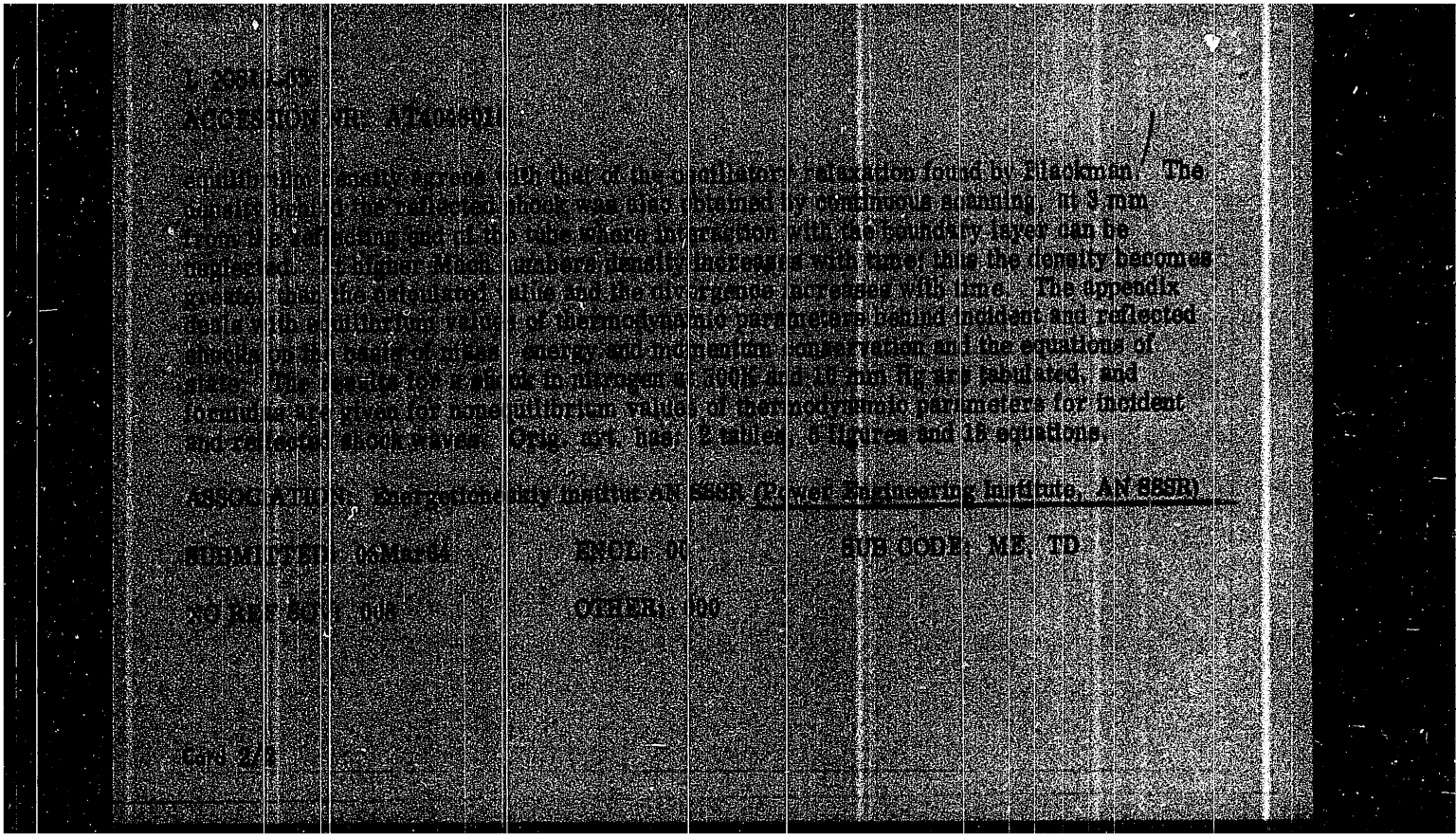
TITLE: Investigation of normal shock wave reflection in a shock tube

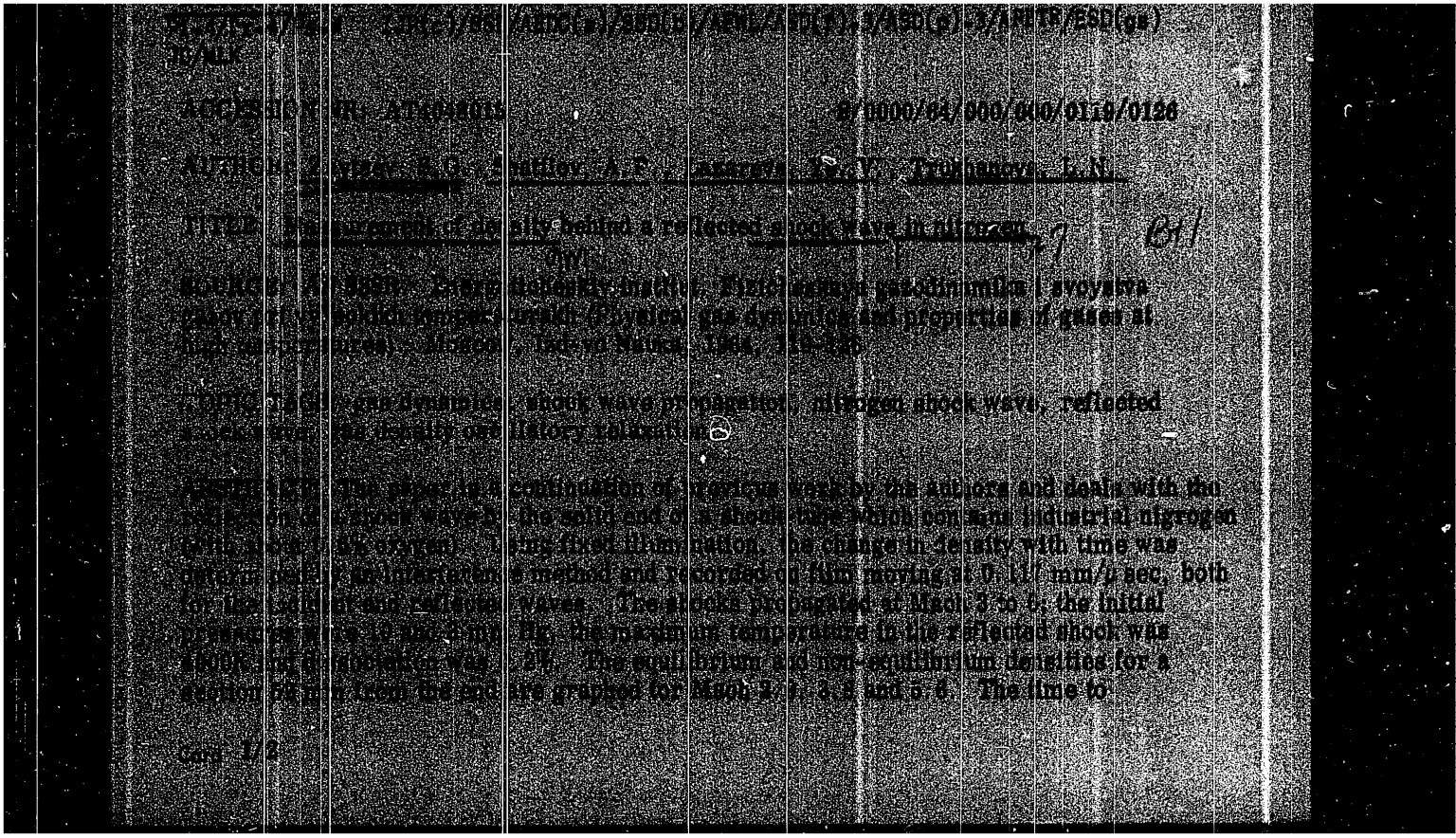
SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1964, 143-149

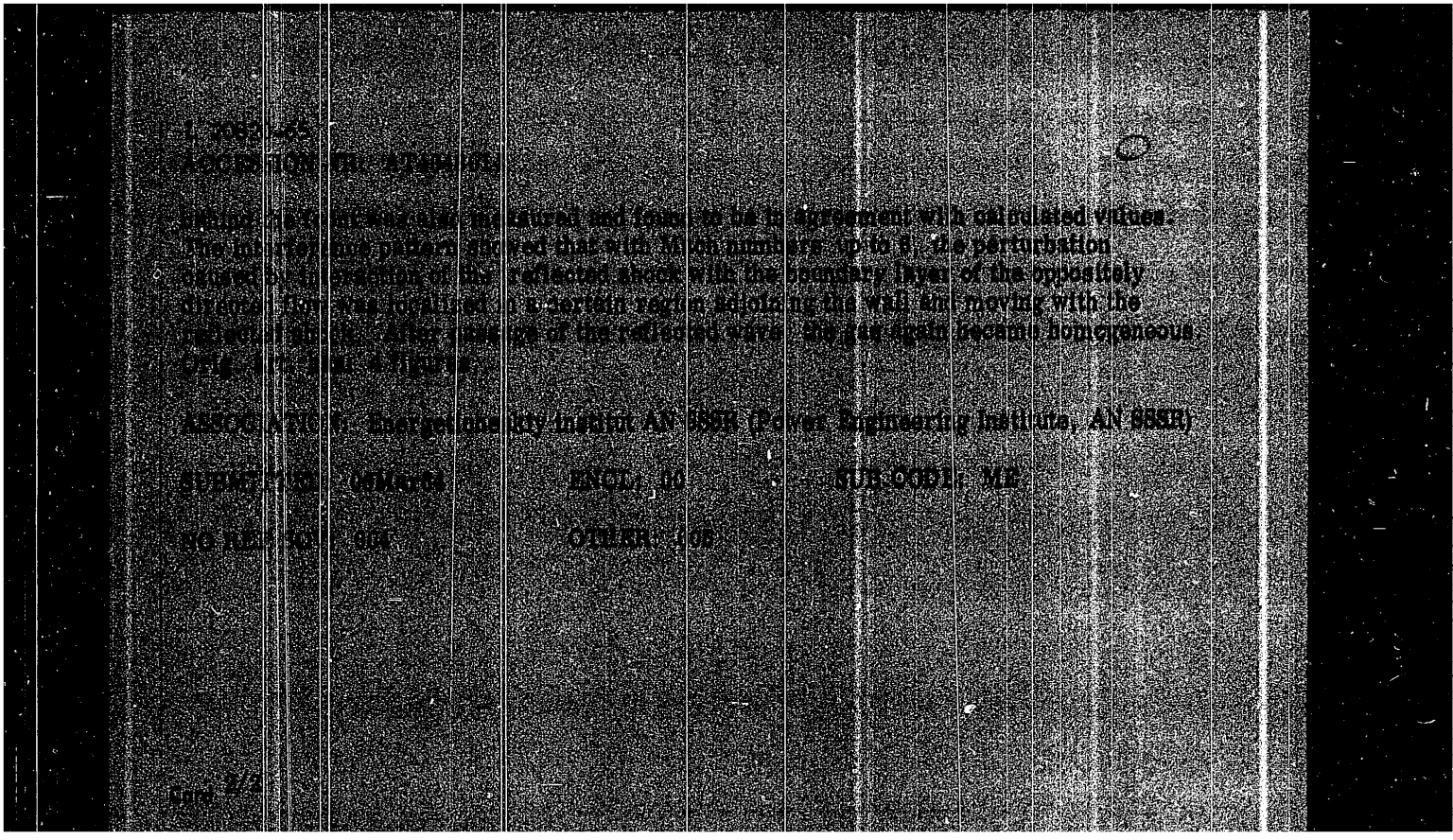
TOPIC TAGS: Mach number, argon, nitrogen, carbon dioxide, shock tube/ Mach Zender interferometer

ABSTRACT: The normal reflection of a shock wave from a solid wall was investigated inside a 72 x 72 mm shock tube with 4.5 mm low-pressure chamber length and 9 mm high-pressure chamber length. Shift in the interference bands ΔS was determined to within 0.1 band on a Mach-Zender interferometer. The absolute errors in density for nitrogen, carbon dioxide, and argon gases were 0.308×10^{-5}, 0.319×10^{-5}, and 0.462×10^{-5} g/cm^3, respectively. First, the state of the gas behind the incident shock wave was studied in N_2, CO_2, and argon gas for initial pressures of 10, 30, and 100 mm Hg respectively at $2 \leqslant M_s \leqslant 6$. Density measurements were made by means of continuous scanning with a vertical slit. The density field ρ_1/ρ_0 for CO_2 was

Card 1/2







Card 2/2

ZAYTSEV,S.G.;LAZAREVA,Ye.V.;TRUKHANOVA,L.N.;SHATILOV,A.P.(Moscow)

"Shock-tube investigation of the density behind the reflected shock wave".

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

reflection of shock waves were carried out at an initial pressure of 0.017 atm, the numbers M of the incident wave varied from 4 to 11. The experimental installation is described in detail. The results, for M between 3 and 6, are situated between theoretical D_2 curves corresponding to non-excited and fully excited inner degrees of freedom. For M between 6 and 11 the experimental points are on the curve calculated for fully excited inner degrees of freedom and frozen-in dissociation. The pressure behind the reflected wave depends on M and varies between 15 and 35 atm. Measured time of establishing of equilibrium values of velocity of the reflected wave and the time of establishing the equilibrium concentration are also given. There are 9 figures and 2 tables.

S/885/62/000/000/010/035
D234/D308

AUTHORS: Bazhenova, T. V. and Zaytsev, S. G.

TITLE: Parameters of CO_2 behind the reflected shock wave and the estimation of the time of establishing the equilibrium dissociation at 4000 - 5000°K

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 111-119

TEXT: The authors give a table of parameters behind the reflected shock wave, calculated under four different assumptions: 1) equilibrium dissociation behind the incident and the reflected wave; 2) equilibrium dissociation behind the reflected wave; excitation of inner degrees of freedom without dissociation behind the incident wave; 3) excitation of inner degrees of freedom without dissociation behind both waves; 4) no dissociation and no excitation of inner degrees of freedom behind either wave. Experiments on

Card 1/2

Composition, thermodynamical and ...

modynamical functions of the components, taken from literature. Where no spectroscopic data could be found, the authors used approximate calculations. The errors due to various neglects are estimated to be of the order of 0.2%. There is 1 figure and 18 tables.

Card 2/2

S/885/62/000/000/002/035
D234/D308

AUTHORS: Pleshanov, A. S. and Zaytsev, S. G.

TITLE: Composition, thermodynamical and gas-dynamical properties of CO_2 at temperatures of 1000 - 12000°K and at pressures of 10^{-2} - 10^3 atm

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 15-35

TEXT: The authors give tabulated values of molar fractions of O_2^-, O^-, C^-, e, CO_2, CO, O_2 etc.; of specific enthalpy, specific internal energy, specific entropy, molecular weight, c_p, c_v, velocity of sound, density; (for 200°, 300° and 400°K only) velocity and Mach number before and after the discontinuity, pressure and density before the discontinuity. A plot of velocity versus pressure before the discontinuity is also given. All data were computed using ther-

Card 1/2

Effect of dissociation...

and internal degrees of freedom are not excited behind either wave. The experiments were carried out on a shock tube with CO_2 at the initial pressure of 0.017 atm. Mach numbers of the incident wave varied between 4 and 11. The velocities of the incident and the reflected wave were measured on photographs made by the method of continuous scanning. The duration of permanence of gas at high temperatures in the reflected wave was approximately 10^{-3} - 10^{-4} sec. Comparison of calculated and measured values of the velocities of reflected shock waves showed that for M ≅ 4 - 6 there is an incomplete excitation of internal degrees of freedom behind the reflected wave (T ≅ 1000°K, p ≅ 1 atm). For M ≅ 8 - 11 (T ≅ 5000 - 7000° without taking dissociation into account, p ≅ 20 - 30 atm) internal degrees of freedom in the gas behind the reflected wave are completely excited but dissociation does not occur. [Abstracter's note: Complete translation.]

Card 2/2

30986
S/124/61/000/009/007/058
D234/D303

26.7311

AUTHORS: Bazhenova, T.V. and Zaytsev, S.G.

TITLE: Effect of dissociation on the parameters of shock waves in CO_2

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 13, abstract 9 B64 (V sb. "3-e Vses. soveshchaniye po teorii goreniya", v. 1, M., 1960, 208-213)

TEXT: The authors studied the state of CO_2 in a shock tube behind the shock wave reflected from the end. Calculations of the velocity of the reflected wave as dependent on Mach number were made with four assumptions: 1) Equilibrium dissociation is reached behind the incident and the reflected wave; 2) behind the incident wave internal degrees of freedom are excited, but there is no dissociation, and behind the reflected wave there is equilibrium dissociation, 3) behind both waves internal degrees of freedom are excited, but there is no dissociation, 4) there is no dissociation

Card 1/2

31504
S/124/61/000/011/028/046
D237/D305

Determining and calculating ...

sen as a characteristic value of the induction period for the temperature behind the reflected wave. Experimental results agree with theoretical ones. Calculating the induction period of a hydrogen-oxygen mixture ($H_2 + O_2$) for temperatures from 800° to 1600°K are based on the usual oxidation reaction. [Abstractor's note: Value in ( ) should be in this case $2H_2 + O_2$]. The values of constants of rate of reaction are given for that temperature range. Experimental data fit the theoretical curve well (except nr. 1000°K) and deductions are made by the author about the applicability of the accepted mode of oxidation of hydrogen in the temperature range up to 2000°K. Given also are the result of velocity measurements of the displacement of the front of ignition centers (of order 100-200 m/sec.). Based on these results, normal flame velocity for the temperatures 900- 1300°K were calculated (of order 40-70 m/sec.). [Abstractor's note: Complete translation].

Card 2/2

31584
S/124/61/000/011/028/046
D237/D305

11,7100

AUTHOR: Zaytsev, S.G.

TITLE: Determining and calculating some characteristics of the process of ignition of a gaseous mixture

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 11, 1961, 99 - 100, abstract 11B666 (Sb. - 3 -ye Vses. soveshchaniye po teorii goreniya. v. 1, M., 1960, 214 - 217)

TEXT: The analysis is given of results of investigating the ignition of hydrogen-oxygen mixture, behind the reflected shockwave, published earlier by the author (S.G. Zaytsev, P.I. Soloukhin, Dokl AN SSSR, 1958, 122, no. 6). It was shown that appearance of centers of iginition behind the reflected wave, can be explained by taking into account the duration of time, during which the mixture is subjected to high temperature, in the wake of both incident and reflected wave. Hence the time interpolated to such a value of the layer coordinate when the preliminary heating of the gas behind the shock-wave does not influence the investigated property, was cho-

Card 1/2

are those investigations which pertain to the conditions of compatibility of the hydrodynamic state of the medium and the chemical process. A. S. Predvoditelev, Professor, Corresponding Member of the Academy of Sciences USSR, wrote the preface. There are 79 references: 41 Soviet (3 of which are translations), 22 English, 13 German, and 3 French.

TABLE OF CONTENTS:

With the aid of the investigation methods developed, a detailed study was undertaken of the mechanism of a detonation occurring during propagation of a flame in a tube and of supersonic flow of gas mixtures capable of reaction in a shock tube. The first chapter was written by G. D. Salamandra; in it a detailed review of various methods used to produce spark photographs of transient processes is given. Certain difficulties which had to be met in the course of the investigations are described and methods for surmounting them are demonstrated. The second chapter, written by S. G. Zaytsev, describes methods for measuring rapidly varying pressures, developed by the Power Engineering Institute of the Academy of Sciences USSR for investigation of the state of gas in shock tubes. The methods have found wide application. The third chapter presents the results of the investigations conducted with the aid of the methods discussed on the mechanism of the development and propagation of detonation waves under various hydrodynamic conditions. These investigations were recently completed at the laboratory for combustion physics by T. V. Bazhenovaya, G. D. Salamandra, R. I. Soloukhniy, S. G. Zaytsev, I. M. Naboko, and I. K. Sevost'yanovaya. Of particular interest

studies in the field of shock and detonation phenomena in gasdynamic processes.

COVERAGE: The book contains the results of original research on methods for investigating transient combustion processes and on the development of detonations under various gasdynamic conditions. The book reviews circuits of spark discharge apparatus and circuits for synchronizing a series of illuminating flashes with the process being investigated. Pulse light sources operating in the regime of frequently repeated flashes are described. A description is also given of simple apparatus designed by the authors for obtaining series of Schlieren photographs with a frequency of 50,000 to 100,000 frames per second for exposures of the order of 10^{-7} sec permitting easy synchronization of the exposure with any gasdynamic process. The construction is shown and an analysis is given of the operation of a piezoelectric pressure transducer which permits reproducing without distortions the shape of a pressure pulse in the case of gasdynamic disturbances.

ZAYTSEV, S. G.

PHASE I BOOK EXPLOITATION SOV/4913

Salamandra, Genriyetta Davydovna, Tat'yana Valerianovna Bazhenova, Sergey Grigor'yevich Zaytsev, Pem Ivanovich Soloukhin, Ideya Mikhaylovna Naboko, and Irina Konstantinovna Sevast'yanova.

Nekotoryye metody issledovaniya bystroprotekayushchikh protsessov i ikh primeneniye k izucheniyu formirovaniya detonatsionnoy volny (Some Research Methods for Transient Processes and Their Application to the Study of Detonation-Wave Development) Moscow, Izd-vo AN SSSR, 1960. 91 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Energeticheskiy institut imeni G. M. Krzhizhanovskogo.

Resp. Ed.: A. S. Predvoditelev, Corresponding Member, Academy of Sciences USSR.; Ed. of Publishing House: Ya. A. Klimovitskiy; Tech. Ed.: V. Karpov.

PURPOSE: This book is intended for engineers and scientists engaged in developing research techniques and performing experimental

Card 1/8 1/4

ZAYTSEV, S. G.

paper submitted for the [illegible] Int. Symposium on [illegible], Pasadena, [illegible] August
3 September, 19[illegible]0.

4. Following is a list of the Soviet papers submitted to the combustion symposium:

L A Lovachev	The Dependence of Laminar Flame Properties on the Mechanism of Chain Reactions
L A Lovachev	The Theory of Flame Propagation in Systems Involving Branched Chain Reactions
NIKITIN, Ye.Ye	On the Mechanism of Non-Adiabatic Relaxation in Molecular Collisions
I N Denisov K I-Shchelkin Ya K Troshin	Some Questions of Analogy Between Combustion in a Thrust Chamber and in a Detonation Wave
K I Shchelkin	On the Criterion of High-Frequency (screaming) Vibrations Generation in a Turbulent Combustion Chamber
A I Sertinov	A Simple Method for Determining Effective Activation Energies for Thermal Decomposition and Spontaneous Ignition of Certain Complex Molecules
L G Bolkhovitinov	On the Theory of Detonation Initiation by Impact
P A Tesner	The Energy of Activation of Gaseous Reactions with Solid Carbon
P A Tesner	Formation of Dispersed Carbon by Explosion and Thermal Decomposition of Acetylene
TESNER, P.A. RAFALKES, I.S. ROBINOVICH, Ye. Ya.	Formation of Dispersed Carbon in Hydrocarbon Diffusion Flames
BAZHENOVA, T.V. ZAYTSEV, S.G.	Effect of Dissociation on the Parameters of Reflected Shock Waves in Carbon Dioxide
ZAYTSEV, S.G. SOLOUKHIN, R.I.	Study of Combustion of Adiabatically Heated Gas Mixture
I N Sondukov E K Chekalin	Some Methods for Studying Two-Phase Fuel-Air Mixtures in a Flow
E K Chekalin	Propagation of Flame in Turbulent Flow of Two-Phase Fuel-Air Mixture
STUPOCHENKO, Ye. V. SAMUYLOV, Ye. V. PLESHANOV, A.S. ROZHDESTVENSKIY, I.B. STACHEVOV, I.P.	Thermodynamic Properties of Air at High Temperatures
A S Predvoditelev	Conditions of Regular Movement of Strong Shocks and Detonation
A S Predvoditelev	Some Remarks on the Regular Movement of Shocks with Spherical and Cylindrical Symmetry
A S Predvoditelev	Regular Motion of Shocks and of Detonation from the Viewpoint of Maxwell's Transfer Equations

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001964100022-6

as well as for valuable advice. There are 3 figures and 9 references, 6 of which are Soviet.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo Akademii nauk SSSR
(Power Engineering Institute imeni G. M. Krzhizhanovskiy of the Academy of Sciences, USSR)

PRESENTED: June 11, 1958, by V. N. Kondrat'yev, Academician

SUBMITTED: June 11, 1958

On the Problem of the Inflammation of an Adiabatically Heated Gas Mixture

to not more than 5 % of the absolute value. Density vibrations amount to not more than 0.5 % of the absolute value. However, the nature of these disturbances is in no connection with the specific properties of the chemically reacting gas mixture. The inflammation process in an adiabatically heated medium develops as follows: The visible reaction, which is accompanied by an intense radiation of light and by a sharp modification of the thermodynamic parameters of the gas mixture occurs first at one or several points of the investigated volume, i.e. the reaction centers. These inflammation centers spread gradually. The front of this inflammation center moves at a temperature of 900° with a velocity of 180-200 m/sec. After amalgamation of several centers of inflammation shock-like explosions take place in the space thus formed, and the velocity of motion of the front of the newly formed domain increases to ~2000 m/sec. A typical photograph illustrating this process is attached. The experimentally determined values of the delay of inflammation agree satisfactorily with the values calculated according to the chain reaction theory.

The authors thank A. S. Predvoditelev, Ye. V. Stupochenko and T. V. Bazhenova for their constant interest in this work

5(4)

AUTHORS: Zaytsev, S. G., Soloukhin, R. I.

SOV/2o-122-6-23/49

TITLE: On the Problem of the Inflammation of an Adiabatically Heated Gas Mixture (K voprosu o vosplamenenii adiabaticheski nagretoy gazovoy smesi)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 6, pp 1o39-1o41 (USSR)

ABSTRACT: The present paper investigates the occurrence and development of an exothermic reaction in a homogeneous gaseous medium, which was adiabatically heated to temperatures of 600-1400° at pressures of 1 - 3 atm. Experiments were carried out by means of a shock tube. In the mixture under investigation, which was in a low-pressure chamber, a shock wave S was produced, which propagated along a channel and was normally reflected by the front surface of the chamber. The inflammation processes were investigated in oxygen-hydrogen mixtures. The schlieren photographs and the pressure recorded on the walls of the chamber indicate the following: The pressure and the density of the gas behind the shock wave are slightly disturbed. The amplitude of the pressure vibration amounts

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SOV/120-58-6-20/32

Measurement of Rapidly Changing Pressures in Gaseous Media

t_1 = 3 μs and T = 66 μs . The paper contains 2 figures and 3 references; 1 reference is English, 1 Soviet and 1 German.

ASSOCIATION: Energeticheskiy institut AN SSSR (Power Institute of the Soviet Academy of Sciences)

SUBMITTED: December 12, 1957.

Card 3/3

Measurement of Rapidly Changing Pressures in Gaseous Media

$$P(t) = K\{G(t) + \varepsilon(t)\}, \quad t_1 < t < T \quad , \qquad (1)$$

where K is a constant depending on the elastic and piezo-electric properties of the element, and:

$$|\varepsilon(t)| \sim \tau_1 \frac{d}{dt} G(t), \quad T = 1/c_0 + 2L/c_1 \quad ,$$

where c_0 and c_1 are the propagation velocities of elastic waves in the piezoelectric element and a [illegible] respectively; L is the length of the rod. An oscillogram of the actual response G(t) of the transducer is shown in Fig.2. It is seen that the risetime of the output pulse is

AUTHOR: Zaytsev, S. G.

TITLE: Measurement of Rapidly Changing Pressures in Gaseous Media (Ob izmerenii bystromenyayushchikhsya davleniy v gazovoy srede)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 6, pp 97-99 (USSR)

ABSTRACT: The pressure transducer described is shown in the diagram of Fig.1. The device employs a piezoelectric element made of barium titanate which is in the form of a cylinder having a diameter $d = 13$ mm and a height $h = 10$ mm. When a force is applied in the direction of the axis of the piezo element, an electrical charge is formed on its surfaces S_1 and S_2 (see the figure). The surface S_2 has an "acoustic" contact with a zinc rod of the same diameter as the element and having a length of 123 mm. Since the acoustic impedances of barium titanate and zinc are equal, the elastic "deformation" wave, which is excited by a pressure pulse $P(t)$, is transmitted to the zinc rod without being reflected at the boundary S_2. The relationship between the impulse $P(t)$ and the response of the transducer $G(t)$ is in the form of:

ZAYTSEV, S.G.

Journal of the Institute of Metals
Vol. 21 Part 7
Mar. 1954
Properties of Alloys

"Temperature Dependence of the Specific Resistance of Iron-Nickel Alloys. V. E. Mikryukov and S. G. Zaitsev (*Vestn. Moskov. Univ.*, 1951, 6, (6); *Ser. Fiz.-Mat. i Estestven. Nauk*, 1951, (8), 21-29; *C. Abs.*, 1953, 47, 1025).—[In Russian]. Experimental results are reported for alloys contg. 35-100% Ni in a temp. range of ~50°-500° C. Two anomalies were observed: (1) at temp. above the Debye temp., the sp. resistance, ρ, departed from its linear dependence on temp.; (2) on approaching the Curie temp., the rate of change of ρ fell sharply, except in the 38% Ni alloy. The Curie temp. given by the data reported agree satisfactorily with those determined magnetically.

Lab Molecular & Thermal Phenomena

AVRAMENKO, L.F.; VILENSKIY, Yu.B.; IVANOV, B.M.; ZAYTSEVA, S.D.; POCHINOK, V.Ya.

Mechanism of the stabilizing effect of tetrazolobenzothiazole derivatives on photographic emulsions. Part 2. Nature of the adsorption compound. Zhur. nauch. i prikl. fot. i kin. 8 no.6:419-426 N-D '63. (MIRA 17:1)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G. Shevchenko i filial Vsesoyuznogo nauchno-issledovatel'skogo kinofotoinstituta, Shostka.

1. ZAYTSEV, S. A., LIPAGINA, V. Ya.

2. USSR (600)

4. Phosphates - Tom'Chumysh Valley

7. Tom'Chumysh phosphorite deposits (report on the work of the Tom'Chumysh geological-prospecting party of the Western Siberian Geological Administration for 1943/44). /Abstract./ Izv. Glav. upr. geol. fon. no. 2: 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

ZAYTSEV, S.

Expand strip mining by all means. Sov.shakht. 11 no.1:7-8 Ja '62. (MIRA 14:12)

1. Zamestitel' nachal'nika Glavnogo upravleniya ugol'noy, torfyanoy i slantsevoy promyshlennosti Vserossiyskogo Soveta Narodnogo Khozyaystva.

(Strip mining)

ZAYTSEV, S.

First Russian photography periodical. Sov.foto 20 no.8:35 Ag '60. (MIRA 13:8)

(Photography--Periodicals)

USSR/Radio - Television Nov 51

"The TM-1 Television Receiver," V. Klibson, S. Zaytsev

"Radio" No 11, pp 53-60

Description of the TM-1 television receiver, which was designed by engineers Kheyfets, Klibson, and Zaytsev so that it can be constructed by radio amateurs. The set employs 13 tubes and an 18LK15 (LK-715) picture tube. The latter provides a picture 105 x 135 mm in size. The set receives the 3 television programs (625 lines on carriers of

208T75

USSR/Radio - Television (Contd) Nov 51

49.75, 59.25, and 77.25 Mc) and the FM sound accompaniment (carriers of 56.25, 65.75, and 83.75 Mc) plus 3 long-wave and medium-wave AM broadcast stations.

208T75

ZAYTSEV, S.

MATASOV, V. (g.Kazan'); MURTAZIN, R. (g.Kazan'); LYAGIN, V. (g.Kazan');
ZAYTSEV, S. (g.Kazan')

Do not yield the championship. Kryl.rod. 11 no.11:3 N '60.
(MIRA 13:10)

(Kazan--Helicopters)

ZAYTSEV, S.

Surprise inspection of workers dormitories. Sov. profsoiuzy 7 no.13:55 Jl '59. (MIRA 12:10)
(Lutsk--Lodginghouses)

GLADKOV, N., zasluzhennyy master sporta; RATSENSKAYA, M., zasluzhennyy master sporta; IL'CHENKO, V., zasluzhennyy master sporta; VERETENNIKOV, M., master sporta; OSTROVSKIY, P., master sporta; ZUBOVA, V., master sporta; CHERNOV, B., master sporta; ZAYTSEV, S., master sporta; PISTOLENKO, V., master sporta; POCHERNIN, V., master sporta

Toward new sportive achievements. Kryl.rod. 13 no.4:7 Ap '62. (MIRA 15:5)

(Aerial sports)

ZAYTSEV, R.Z.

Nerve suture in primary surgery of an infected wound. Vop. psikh. i nevr. no.3:266-275 '58. (MIRA 12:3)

1. Iz kliniki nervnykh bolezney Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(NERVES--SURGERY) (PENICILLIN)

ZAYTSEV, R.V., inzh.; SIBIRKO, A.M., inzh.; BYKOV, V.I., inzh.

Using electronic calculating machines in computing the quantities of earthwork. Transp. stroi. 11 no.1:61 Ja '61. (MIRA 14:1)
(Electronic calculating machines) (Earthwork—Accounting)

ZAYTSEV, R.V., inzh.

Applying integral summing in the comparison of variants. Trudy MIIT no.129:53-67 '60. (MIRA 13:11)
(Railroads--Cost of operation)

ZAYTSEV, R.V., inzh.

[redacted] Determining culvert outlets under railroad tracks laid through salt pan regions. Transp. stroi. 8 no.10:21-24 O '58.
(MIRA 11:11)

(Culverts) (Railroad bridges)

ZAYTSEV, R.V., inzh.

Adding expenditures in comparing variations. Transp.stroi. 9 no.10:46-48 O '59. (MIRA 13:2)
(Railroads--Cost of operation)

ZAYTSEV, R.V., inzhener; MELAMUD, Ya.G., inzhener.

Artificial diversion of run-off between small streams. Transp.stroi. 5 no.8:22-23 O '55. (MLRA 9:1)
(Hydraulic engineering)

LYAKHOVSKIY, V.N., kand.tekhn.nauk; MIKHALEVICH, V.S., kand.fiz.-matem.nauk; BYKOV, V.I., inzh.; ZAYTSEV, R.V., inzh.; SIBIRKO, A.N., inzh.; SHOR, N.Z., inzh.

Determination on an electronic digital computer of the most advantageous location of a red line of longitudinal section which may move freely. Transp. stroi. 12 no.4:41-43 Ap '62. (MIRA 15:5)

(Electronic digital computers) (Railroads--Location)

ZAYTSEV, R.V., inzh.

Comparing variants for the control of the growing freight traffic. Vest.TSNII MPS 19 no.2:51-52 '60. (MIRA 13:6)
(Railroad--Freight)

LYAKHOVSKIY, V.N., kand.tekhn.nauk; BERESTOVENKO, K.M., inzh.; ZAYTSEV, R.V., inzh.; KIZ', A.M., inzh.; SIBIRKO, A.N., inzh.

Choosing the optimum red line over difficult terrain using electronic digital computers. Transp. stroi. 12 no.2:42-43 F '62. (MIRA 15:7)
(Electronic digital computers)

ZAYTSEV, R. V.

Cand Tec Sci, Diss -- "Problems in designing railroads for gas turbine drive". Moscow, 1961. 18 pp, 22 cm (Min of Transport Construction USSR. All-Union Sci Res Inst of Transport Construction), 200 copies, Not for sale (KL, No 9, 1961, p 182, No 24339). [61-54868]

ZAYTSEV, R.V., inzh.

Technical and economic advantages of gas-turbine traction on new railroad lines. Trudy MIIT no.130:198-211 '60. (MIRA 14:3)
(Gas-turbine locomotives)

ZAYTSEV, R.V., inzh.

Effect of gas-turbine locomotive traction on some indicators of new railroad lines. Transp. stroi. 9 no.4:38-39 Ap '59.
(MIRA 12:6)

(Gas-turbine locomotives) (Railroads--Management)

ZAYTSEV, R.V., inzh.

Planning railroads for gas-turbine locomotives. Transp. stroi. 10 no.8:40-43 Ag '60. (MIRA 13:8)
(Gas-turbine locomotives)
(Railroad engineering)

ZAYTSEV, R.S.; ZAVEL'SKAYA, N.Ye.

Combining technological processes in a 24-hour workday. Ugol'. prom. no.6:10-11 N-D '62. (MIRA 16:2)

1. Kombinat "Donetskugol'".
(Donets Basin--Coal mines and mining)

ZAYTSEV, R.S., inzh.; VAYNSHTEYN, L.A., inzh.

Technology of coal extraction in the longwalls of development workings. Ugol.prom. no.5:25-28 S-O '62. (MIRA 15:11)

1. Kombinat "Donetskugol'."
(Coal mines and mining)

ZAYTSEV, R.O.

Solution of superconductivity equations for a system consisting of a superconducting and a normal metal. Zhur. eksp. i teor. fiz. 48 no.2:644-651 F '65. (MIRA 18:11)

L 36382-66

ACC NR: AP6014046

3

Larkin for fruitful discussions and help, Ye. G. Maksimov and A. I. Rusinov for their discussing the results. Orig. art. has: 34 formulas. [Based on authors' abstract] [NT]

SUB CODE: 20, 11/ SUBM DATE: 06Nov65/ ORIG REF: 006/ OTH REF: 005

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Card 2/2

L 36382-66 EWT(1)/EWT(m)/T IJP(c) GG

ACC NR: AP6014046 SOURCE CODE: UR/0056/66/050/004/1055/1063

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B

AUTHOR: Zaytsev, R. O.

ORG: None

TITLE: Boundary conditions and surface superconductivity

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 4, 1966, 1055-1063

TOPIC TAGS: superconductivity, surface superconductivity, superconducting alloy

ABSTRACT: Boundary conditions have been found for the Ginzburg, Landau, and Gor'kov equations (L. P. Gar'kov, ZhETF, 36, 1918, 1959; L. P. Gor'kov, I. Ye. Dzyaloshinskiy, Metody kvantovoy teorii polya v statisticheskoy fizike, Fizmatgiz) on the interface between two superconductors and also between a superconducting and standard metal. The limiting cases of pure or very impure metals were considered. Boundary conditions for an arbitrary impurity concentration can also be obtained by means of a simple generalization. The quaziclassical trajectory method, employed in this work, can be used for determining the boundary condition for a plane or a rough surface. The critical field for a system consisting of a superconducting and standard metal was calculated. It slightly exceeds the second critical field H_{c_2} of a massive superconductor. The author thanks Professor B. T. Geylikman and A. I.

Card 1/2

ZAYTSEV, R.L.

Role of competition in the dissemination of progressive practices in the organization of production and labor. Metallurg 5 no.5:3-5 My '60. (MIRA 14:3)

1. Moskovskiy ekonomiko-statisticheskiy institut.
(Socialist competition)
(Industrial organization)

BORISOV, Yevgeniy Filippovich; ZAYTSEV, Rostislav L'vovich;
STEBUNOV, N.S., red.; PONOMAREVA, A.A., tekhn. red.

[Socialist competition and the economics of enterprises]
Sotsialisticheskoe sorevnovanie i ekonomika predpriiatii.
Moskva, Ekonomizdat, 1962. 93 p. (MIRA 15:10)
(Socialist competition) (Industrial management)

ZAYTSEV, Rostislav L'vovich; SEMENKOV, Vladimir Nikanorovich; SHVEYTSER, Ye.K., red.; YEZHOVA, L.L., tekhn. red.

[Transformation of socialist labor into communist labor. The transition to the communist principle of distribution according to needs]Pererastanie sotsialisticheskogo truda v kommunisticheskii trud. Perekhod k kommunisticheskomu printsipu raspredeleniia po potrebnostiam. Moskva, Vysshaia shkola, 1962. 57 p. (MIRA 16:2)
(Labor and laboring classes)

KARPOV, A.A., inzh.; KUSTODAYEV, G.G., inzh.; LAUSHKIN, N.P., inzh.; LANGE, Z.I., inzh.; NOSYREVA, M.D., inzh.; SAVEL'YEV, G.V., inzh.; SHCHULEPNIKOV, I.S., inzh.; Prinimali uchastiye: SYCHKOV, B.A., inzh.; MILIKHIN, A.Ye., inzh.; ZAYTSEV, R.A., inzh.; ZARZHITSKIY, Yu.A., inzh.; LEONT'YEV, A.I., inzh.; VIKTOROVA, T.Ye., inzh.; SERIKOV, A.A., inzh.

Operation of recuperator soaking pits in the 1150 MMK rolling mill. Stal' 22 no.8:753-758 Ag '62. (MIRA 15:7)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Furnaces, Heating) (Rolling mills)

ZAYTSEV, P.Ye.

In the Moscow Technological Institute of the Food Industry.
Sakh.prom. 33 no.9:78 S '59. (MIRA 13:1)
(Sugar industry--Congresses)

ZAYTSEV, P.Ye.

Automatic control of beet pulp driers. Sakh.prom. 33 no.9: 49-50 S '59. (MIRA 13:1)

1. Vystavka dostizheniy Narodnogo Khozyaystva SSSR.
(Sugar industry--Equipment and supplies)
(Automatic control)

1. ZAYTSEV, P. Ye

2. USSR (600)

4. Flounders-Khadzhibei Liman

7. Observations of the development of flounder eggs (Pleuronectes Flesus Luscus Pallas) in the Khadzhibei Liman., Dokl.AN SSSR, 87, No.1, 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

LOGA, V.Ya.; ZAYTSEV, P.Ye.

Sugar industry at the All-Union Industrial Exhibition in 1958.
Sakh. prom. 32 no.12:10-11 D '58. (MIRA 11:12)
(Sugar industry--Exhibitions)

311, 246, 5, 377). The analysis showed [Abstractor's note: Details not given] that the resolution of the lens is basically limited by the fact that non-axial achromatic electrons are being focussed in different planes. With an energy spread of electrons of the order of 5-6 eV a background is, therefore formed in which the picture disappears. There are 10 figures, 5 Soviet-bloc and 9 non-Soviet-bloc references. The references to the 4 most recent English-language publications read as follows: M.E. Haine, P.A. Einstein, Brit. J. Appl. Phys 1952, 3, 2, 40; P.A. Sturrock, Philos, Trans. Roy Soc. London, A. 1951, 243, 368, 387; G.D. Archard, J. Scient. Instrum. 1953, 30, 10, 353; R. Rudenberg, J. Franklin Inst., 1948, 246, 311; 246, 5, 377.

SUBMITTED: February 7, 1961

Card 5/5

Certain problems of reflex ...

bation potentials, normally evaluated by Bertein's method. It may be shown, however, that this method does not determine the exact boundary conditions necessary for solving the problem of the Laplace equation for perturbation potentials. This problem may be solved exactly only when it is assumed that the perturbation is very small. The modified Mathieu functions may be then reduced to the sums of Bessel functions, whose terms are multiplied by the parameter of the Mathieu equation. In their analysis the authors concluded that there is no general method for evaluating the perturbation potentials and used the integral of an ordinary layer to determine them in the near axial region. The details of the analysis are not given. The poles used had the geometrical form with s/d ratio of 1.5 [Abstractor's note: Symbols d and s not defined]. The authors also investigated the filter lenses in an attempt to increase the resolution of the reflex microscope. In their analysis [Abstractor's note: Details not given] they used the mathematical model of single electrostatic lenses of W. Glaser and P. Schiske (Ref. 13: Optik, 1954, 11, 9, 422; 1954,11, 10, 455; 1955, 12, 5, 233) and of R. Rüdenberg (Ref. 14: J. Franklin Inst. 1948, 246, 4,

Card 4/5

shown. For an electrode with angle $\alpha = 120^0$, h = 0.5 mm; for $\alpha = 90^0$ and 60^0, h = 1.5 mm. For comparison j = f(Ia) is also drawn for the normal electron gun YƏM-100 (UEM-100), in which the tip of the filament is 0.75 mm above the focussing electrode. It may be seen that for $\alpha = 120^0$ the current density is increased by approximately 4.6 times with a current of 250 μA and 7 times with a current of 500 μA. The electron gun is mounted in the illumination system of the microscope. The gun is introduced through a jacketed port and can be mechanically rotated through any angle from 0^0 to 22^0 measured on a vernier scale. The electron optical magnification of the microscope is x2500, resolution about 500 Å. The authors also undertook theoretical analysis of the influence on the finition of imperfect assembly and shape of magnet cores. Since the picture is formed by electrons undergoing considerable decelerations, the axial deformation of the magnet slots and errors in their axial positioning produce a constant magnetic field near the axis and perpendicular to it. Such a field has analyzing properties and may introduce chromatic aberration. The evaluation of such aberrations requires the determination of the corresponding pertur-

ing the diaphragm aperture of the objective which in turn reduces considerably the picture illumination. In the described microscope the increased illumination was obtained by designing a more effective electron gun and by utilizing a light intensifier. Since the definition of a reflex microscope is determined by the diaphragm of the objective, which means that in an electron microscope the efficiency of the electron gun is determined not by electron brightness but by the current density of the sample, several types of gun were investigated; it was found that triple electrode guns of special construction produce a much greater current density than the standard guns normally used in electron microscopes. The special feature of such a gun is the conical shape of the focussing electrode. The dependence of current density j at the cross-over point of the anode current was determined for electrode angles α of 60°, 90° and 120° with depth of penetration h of the tip of the cathode filament (filament dia. 0.12 mm) with respect to the cone apex, as a parameter for maximum current density at U = 60 kV. The temperature of the cathode was 2800°K. The optimum results obtained are

S/109/61/006/008/010/018
D207/D304

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AUTHORS: Der-Shvarts, G.V., Kushnir, Yu.M. Rozenfel'd, L.B., Zaytsev, P.V., Bezlenkin, S.V., Trutneva, I.S., Belenkiy, S.A., Titov, L.A.

TITLE: Certain problems of reflex electron microscopy

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 8, 1961, 1358 - 1364

TEXT: This paper was presented at the 3rd All-Union Conference on electron microscopy, Leningrad, October 1960. The present article describes an electron reflex microscope based on the design by Ch. Fert, R. Marty, R. Saporte (Ref. 1: C. r. Acad. Sci. 1955, 240, 20, 1975) who have shown that by tilting the illumination system by 15 - 20° in a reflex microscope, a good image may be obtained with small deformation of the scale and a large useful image area. The main deficiency of such a system in an electron microscope is the chromatic aberration; the aberration can be reduced, by reduc-

ROZENFEL'D, A.M.; ZAYTSEV, P.V.

Magnetic object lens for an emission electron microscope. Izv.AN SSSR.Ser.fiz. 25 no.6:713-716 Je '61. (MIRA 14:6)
(Electron microscope)

DER-SHVARTS, G.V.; KUSHNIR, Yu.M.; ROZENFEL'D, L.B.; ZAYTSEV, P.V.; BEZLEPKIN, S.V.

Modernizing the UEM-100 microscope. Izv.AN SSSR.Ser.fiz. 25 no.6:721-724 Je '61. (MIRA 14:6)
(Electron microscope)

KUSHNIR, Yu.M.; ROZENFEL'D, A.M.; ZAYTSEV, P.V.; KOP'YEVA, N.A.; ROZENFEL'D, L.B.

Attachment for the EEM-50 emission microscope for studying secondary emitters. Zav.lab. 30 no.12:1512-1513 '64.

(MIRA 18:1)

A New Model of an Emission Electron Microscope for the Study of the Thermo- and Secondary Emitter (EEM-50) SOV/48-23-4-20/21

axis. The object chamber has a cylindrical shape and is sealed off from the remaining inside space of the instrument. Other electron optical parts are accurately described. The vacuum system is then dealt with and the pressure distribution in the microscope is described. The pressure is measured with an ionometer. The instrument EEM-50 was developed from the EEM-75. There are 2 figures and 2 Soviet references.

Card 2/2

AUTHORS: Rozenfel'd, A. M., Zaytsev, P. V. SOV/48-23-4-20/21

TITLE: A New Model of an Emission Electron Microscope for the Study of the Thermo- and Secondary Emitter (EEM-50) (Novaya model' emissionnogo elektronnogo mikroskopa dlya issledovaniya termo- i vtorichnykh emitterov (EEM-50))

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 4, pp 527 - 530 (USSR)

ABSTRACT: The attainable vacuum in emission microscopes is of decisive importance for resolution, as it is necessary to attain pressures up to $2 - 5.10^{-5}$ torr. The high vacuum causes difficulties with respect to the seals in general and especially as concerns the seals of the adjusting and governing appliances to be operated from outside. Rubber seals of the usual construction are not sufficient and therefore, combined rubber-metal seals were developed to meet the high requirements. The new seals, however, cause complications in the construction, as well as in the operational safety and simplicity with the appliances mentioned. The instrument developed by the authors features an immersion object lens with an object chamber. The cathode with the emitter to be investigated can be shifted in a vertical plane to the optical

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05465
SOV/120-59-3-36/46

An Electron Microscope Lens for Studies of Objects in a Gaseous Medium

has a small space 9 into which the gas may be introduced. The volume of the gas may be adjusted and the pressure may be measured using a U-tube manometer. The resolution is 80 Å at a pressure of 170 mm Hg and 120 Å at 520 mm Hg (Fig 2). The objective may be used not only for studies in gaseous media but also for ordinary studies. Acknowledgment is made to Yu. M. Kushnir for his interest in the present work.
There are 2 figures and 3 references, 2 of which are German and 1 English.

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AUTHORS: Stoyanova, I. G. and Zaytsev, P. V.

TITLE: An Electron Microscope Lens for Studies of Objects in a Gaseous Medium (Linza k elektronnomu mikroskopu dlya issledovaniya ob"yektov v gazovoy srede)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3, pp 138-139 (USSR)

ABSTRACT: In 1942 Ruska (Ref 1) built an experimental device which may be used to introduce a gas into the object chamber in the Siemens microscope. Other methods of introducing gases were suggested by Ardenne (Ref 2) and Abrams et al. (Ref 3). These devices have several well known limitations and it was the aim of the present work to minimize them. The final design of the objective lens which is used in the UEM-100 electron microscope is shown in Fig 1. The lens consists of the main body 1, a jacket 2, coils 3 and pole piece 4 and contains three mechanisms: the screening diaphragm mechanism 5, the mechanism controlling the object chamber 6 and the aperture diaphragm mechanism 7. The specimen holder 8, which is shown in the small drawing on the left of Fig 1,

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FRIMER, A.I.; ZAYTSEV, P.V.; IL'IN, V.V.; MITEKHIN, Ye.P.

Apparatus for thermal and cathodic atomization and etching of metals in a gas discharge. Zav.lab.22 no.2:238-240 '56.
(Metallography--Apparatus and supplies) (MLRA 9:6)

ZAYTSEV, P. V.

ZAYTSEV, P. V. - "Some problems in the design of magnetic electron microscopes." Moscow, 1955. Min Radio Engineering Industry USSR. (Dissertation for degree of Candidate of Technical Sciences.)

SO: Knizhnaya letopis', No 48. 26 November 1955. Moscow.

ZAYTSEV, P. V.

"A Small-Size Electron Microscope," Elektrichestvo, No. 12, 1950.

28(4)

AUTHORS: Zaytsev, P. V., Bondarev, N. S. SOV/131-59-1-8/12

TITLE: A Gas Discharge Device (Gazozabornoye ustroystvo)

PERIODICAL: Ogneupory, 1959, Nr 1, pp 45-46 (USSR)

ABSTRACT: It was the object of this work to eliminate the shortcomings of the usual electric gas analyzers. Within 10-20 minutes after starting, these were so much dusted that their readings became very inaccurate. They are very difficult to clean. Figure 1 shows the design of such device equipped with filters. The authors have worked out a device (Figs 2 and 3) which works without a filter, the water performing the function of a filter. Thus, the gas discharge pipe does not get soiled so much and its indications are more accurate. There are 3 figures.

ASSOCIATION: Borovichskiy kombinat ogneuporov (Borovichi Kombinat of Refractories)

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ACCESSION NR: AP3007823

vice is shown in Figure 2. The strain is applied by means of a synchronous electric motor rotating the screw shaft. The deformation provess was recorded by internal photography and by photography (still and motion picture) of a glass screen mounted in the bottom of the internal camera and viewed by means of a mirror. A series of four micrographs of the surface of a specimen of heat-resisting alloy, lightly etched before straining, is reproduced. The electron micrographs reveal some details not disclosed by an optical microscope. "In conclusion, the authors express their gratitude to G.V.Der-Shvarts and V.P.Rachkov for calculation of the two-slit achromatic projector lens." Orig.art.has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 07Oct63 ENCL: 01

SUB CODE: ML, SD NO REF SOV: 002 OTHER: 000

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ACCESSION NR: AP3007823 S/0048/63/027/009/1184/1187 57 55

AUTHOR: Rozenfel'd, L.B.; Kushnir,Yu.M.; Zaytsev,P.V.; Titov,L.A.; Bezlepkin,S.V.; Polyak, E.V.

TITLE: Reflecting electron microscope adapted for examination of strained specimens /Report, Fourth All-Union Conference on Electron Microscopy held in Sumy* 12-14 March 1963/

SOURCE: AN SSSR, Izv.Ser.fizicheskaya, v.27, no.9, 1963, 1184-1187

TOPIC TAGS: electron microscopy, strain, strength of material

ABSTRACT: The paper gives the results of testing a reflecting electron microscope adapted for observation of strained specimens. A reflecting electron microscope described earlier (Radiotekhnika i elektronika, No.8, 1359, 1961 and Zavodskaya laboratoriya, 27, 1528, 1961) with a maximum tilt angle of 22° was modified for this purpose by provision of a special object holder and incorporation of a two-slit projector lens to provide better resolution over the entire field. The optimum shape for the specimens was found on the basis of extensive experimentation; this is shown in Figure 1 of the Enclosure. The specimen holder and straining de-

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P.A. ZAYTSEV, P.V. Industrial and scientific Application of Electronics

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Small Electron Microscope. N. G. Sushkin, P. V. Zaitsev and O. N. Rybakov. *Elektrichestvo*, 1949, No. 12, 6-9.—A new Russian simplified design, suitable for series production, is described. It is operated at 35-50 kV. and has a magnification of 1,000-16,000. The electron gun is at the bottom of the central column, the fluorescent screen at eye level and the photographic camera at the top. The gun is fully screened, e.h.v. being supplied by a screened cable. A condenser lens and a two-lens magnetic focus system are used. Details of the photographic arrangements, controls, vacuum system and stabilized supplies, etc., are given, as well as a cross-sectional drawing of the column.

Elec. Eng. Abs.

1951

BATOV, Pavel Ivanovich, general armii; YEZHAKOV, V.I., polkovnik, red.; ZAYTSEV, P.P., red.

[Operation "Oder"; combat operations of the 65th Army in the Berlin operation, April-May 1945] Operatsiia "Oder"; boevye deistviia 65-i armii v Berlinskoi operatsii, aprel'-mai 1945 goda. Moskva, Voenizdat, 1965. 143 p. (MIRA 18:3)

GAMERSHTEYN, V.A., inzh.; LITVINENKO, V.G., inzh.; Prinimali uchastiye: FILONOV, V.A., inzh.; KSENDZUK, F.A., inzh.; SAMOYLOV, I.D., inzh.; VERBITSKIY, A.I., inzh.; YASHNIKOV, D.I., inzh.; LEYCHENKO, M.A., kand. tekhn. nauk; CHAMIN, I.K., tekhnik; TOKAR', P.K., inzh.; ZAYTSEV, P.P., inzh.

Mastering the production of cold-rolled sheets. Met. i gornorud. prom. no.6:72-74 N-D '62. (MIRA 17:8)

1. Zavod "Zaporozhstal'" (for Gamershteyn, Litvinenko, Filonov, Ksendzuk, Samoylov, Verbitskiy, Yashnikov). 2. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. Bardina (for Leychenko, Chamin, Tokar', Zaytsev).

ZAYTSEV, Pavel Petrovich; SLEPNER, B.K., inzh., retsenzent;
DUGINA, N.A., tekhn. red.

[Hydraulic duplicating devices of machine tools]Gidrokopiroval'nye ustroistva metallorezhushchikh stankov. Moskva, Mashgiz, 1962. 135 p. (MIRA 16:3)
(Machine tools)
(Oil--Hydraulic machinery)